REMARKS

As a result of the foregoing amendment, Claim 3 has been cancelled, thereby obviating the objection and rejection thereof.

Claim 10 has been cancelled and rewritten in independent form as Claim 19, including the recitation of Claim 15. The objected to phrase "possibly" does not appear in new Claim 19. New Claim 20, dependent from claim 19 has been added to contain the recitation as to the possibility of the additional step of simultaneous molding and stabilizing the preform.

Claim 15 has been amended to change to the objected to expression "process gas" to methyltrichlorosilane.

Accordingly, it is submitted that the rejections under 35 U.S.C. §112 have been obviated by the foregoing described amendments and these rejections should be withdrawn.

It is also noted that inasmuch as Claim 10 has been rewritten in independent form, including all of the limitations from the claims from which it depended and the dependency of Claims 11 and 12 have been corrected, these claims are, as indicated by the Examiner, are in condition for allowance and Notice to that effect is earnestly solicited.

Reconsideration and withdrawal of the rejection of Claims 2, 7-9 and 15 as being unpatentable under 35 U.S.C. §103(a) over the Rey, et al. '908 patent are requested. The Examiner asserts that Rey discloses a method for producing a

composite using CVI into carbon fiber scrims. The Examiner asserts that the disclosure of Rey indicates that several carbon fiber felts are placed in sequence. It is the Examiner's position that the first carbon felt reads on the heat-resistant material with a large surface and a reaction zone between the feed and the additional carbon fiber felt and the second and subsequent carbon fiber felt read on the scrims of carbon fiber preform, referring to column 8, lines 37-41. The Examiner recognizes that the reference fails to disclose the pre-reacting of the process gas or adjusting of the residual porosity. However, the Examiner takes the position that this prior art teaches all of the same process steps of the present claims and the results obtained by Applicants' process must necessarily be the same as those obtained by the prior art. The Examiner posits that by contacting the process gas with the top carbon fiber felt, it must necessarily result in pre-reacting the process gas. The Examiner seems to believe that the applicants and the prior art either have different definitions for contacting the fiber felt with the process gas or the applicants are using other process steps for parameters not shown in the claims.

This is an incorrect characterization of Claim 15, an incorrect characterization of the Rey et al reference and an incorrect assumption based on the disclosure of this reference. Thus, the Rey reference has as an important purpose, the avoidance of the presence of silicon-containing gas of species at a high concentration at the outlet from the infiltration chamber because this favors the formation of undesirable condensates and can be particularly dangerous on the walls of the pipework downstream from the chamber. It is an object therefore in one of the embodiments. (Fig. 2) to lower the concentration of the silicon-containing gas species in the

residual gas to reduce the risk of such deposits being formed (Column 3, lines 45-52). One way to achieve this is by causing the residual gas to pass in contact with and/or through one or more substrates in a dilution zone situated downstream from the infiltration chamber (column 3, lines 55-58).

It is for this purpose that the reference teaches placement of several discs 84 (FIG. 2) one above the other in the dilution zone, but not the infiltration zone. As pointed out at column 8, lines 48-53, the dilution zone cannot be considered as being an extension of the working infiltration zone in a way that would make it possible to consider densifying preforms to make composite material parts in the dilution zone. This is because there are constraints concerning the shapes, dimensions and porosity of substrates disposed in the dilution zone. Moreover, the residual gas that penetrates into the dilution zone does not necessarily have the appropriate composition for depositing silicon carbide with a desired microtexture and/or with the desired uniformity of densification. It is for this reason that the substrates which are densified in the dilution zone must be sacrificed. (Column 8, lines 53-62)

in other words, these discs are not products of the infiltration process and are not carbon fiber preforms or silicon carbide fiber preforms which are to be infiltrated and which are the products of the process.

This contrasts to the language of Claim 15 which requires the placement of a heat-resistant material with a large surface between a gas feed in the reaction space and the "fiber scrims of carbon fiber preforms or silicon carbon fiber preforms to be infiltrated". The three discs in the dilution zone of the reference are not in the

reaction space. Moreover, there is absolutely no suggestion of the placement of a large surface of heat resistant material between the gas feed in the reaction space and the fiber scrims which are to be infiltrated.

There is absolutely no disclosure of the concept of pre-reacting the methyltrichlorosilane or the placement of a separate heat-resistant material having a large surface between a gas feed and the reaction space and the fiber scrims which are to be infiltrated. The Examiner's supposition as to the possible function of the top disc shown in FIG. 2 finds no basis in the reference. Moreover, in this reference, there is no placement of a heat-resistant material with a large surface in the reaction space and between the scrims which are to be treated. This rejection can be based only upon the hindsight disclosure provided by the present application which, of course, is not available as a reference.

In addition, the carbon fiber substrates 84 as disclosed in FIG. 2 of the reference are placed in the dilution zone. This is not the zone where the heat-resistant material recited in the present claims is placed. Rather, the heat-resistant material in placed in the reaction space.

This reference has nothing to do with the objects of the present invention as claimed. In addition, the perforated plates 46 are used for preheating the gas mixture introduced into the reactor. This preheating is carried up to a temperature at which decomposition of MTS is just starting and only precedes as the product substrate becomes infiltrated. This SIC deposition thus depends on the direct or immediate decomposition of MTS molecules and the process conditions,

temperature and pressures, are set for this purpose. Particular attention should be directed to the low-pressure of $\leq$ 25kPa (see for example, column 5, lines 18-47). This low pressure is said to be necessary to favor diffusion of the reaction gas into the core of the preform to be densified (see column 6, lines 38-42).

Such conditions correspond to the conventional isothermal-isobaric processes and particularly, the pressure values are definitely under 0.6 bar, i.e., 60 kPa. It is again noted that it is the object of the present invention to set the process parameters as high as possible.

Moreover, the process defined by the present claims as compared to the '908 patent consciously uses gaseous intermediate products formed in the pre-reaction to infiltrate the product preforms. The preheating plates mentioned in the reference are not suited to perform this pre-reaction as required by the present claims.

This is all the more clear since measures have had to be introduced such as dilution and wash gas as well as the introduction of condensation surfaces which with the concentration of silicon containing gas species may be lowered in the effluent region in order to avoid undesired condensates from molecules types (column 3, lines 35-38). As again noted, the fiber felt discs used in the reference are combined with inert gas dilution in the off-gas zone, i.e., after the infiltration zone in which the product preforms are infiltrated on the above-mentioned molecule species. It is particularly noted that the formed SiC product is of no use and has to be sacrificed (column 8, lines 58-62).

Consequently, nothing in the document can suggest the process recited in present Claim 15 which requires the pre-reaction in order to produce gaseous intermediate products having high quality SiC of suitable composition for infiltration and to obtain an enhanced deposition due to the increased temperature and the increased process pressure as compared with the state of the art.

The rejection on the basis of this reference is untenable and should be withdrawn.

Favorable reconsideration and prompt Notice of Allowance are earnestly solicited.

Respectfully submitted,

Dated: January 30, 2007

By _____

Jules E. Goldberg
Reg. No. 24,408
REED SMITH LLP
599 Lexington Avenue
29th Floor
New York, NY 10022-7650
(212) 521-5400
Attorney for Applicant

GHK/JEG:jlw